

## The Multimedia Contact Center: Corporate Faade or Human Face? (Correct)

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**Abstract:** This thesis provides a comprehensive overview of multimedia contact centers, which are leveraging Web technologies to revolutionize customer care by enabling companies to connect with customers via POTS telephony, IP telephony, e-mail, fax, and Web-based text chat. It provides a broad overview of the customer care industry and discusses the implications of the three forms of convergence—technological, competitive, and servicelevel—currently shaping that industry. In addition, it provides detailed functional overviews of both call center and multimedia contact center functionality, explores the challenges that multimedia contact solutions present to customer care centers, identifies key ... ([Update](#))

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The Fletcher School of Law and Diplomacy

## **The Multimedia Contact Center: Corporate Façade or Human Face?**

By Todd Neff  
Submission as a half-MALD Thesis and  
satisfaction of outstanding P235 course requirements  
Professor Lee McKnight  
April 10, 2000

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## **Introduction**

The information revolution is changing the way businesses communicate with their customers. E-commerce, an overused and overly broad phrase applied to all sorts of Web-based business transactions (business-to-business, business-to-consumer, and, through sites like E-Bay, consumer to consumer) has been the driving force of this change.

Although barriers to entry are low on the Web, the fact that becoming a successful player in the online business world entails more than simply nailing up an empty façade of a home page is no longer a revelation. As e-businesses (dot-coms) are finding out, delivering a consistently high quality of customer service is instrumental to success. At the same time, however, brick-and-mortar businesses (dot-bams) with reputations for excellent call-center based customer service are finding that they must broaden their service offerings to remain competitive in a marketplace that seems to be racing toward the Internet.

Not surprisingly, multimedia customer contact centers—which include Web-based customer service tools that can handle a variety of customer-service touch points, including e-mail, Web-page callback buttons, text chat, and voice over Internet protocol (VoIP)—are an area of increasing industry interest as consumers and businesses turn their attention (be it for shopping around or for making purchases) increasingly to the Web. This phenomenon has precipitated a shift that has propelled the multimedia contact center from trade journal fare to the mainstream, as exemplified by e-contact solution providers like Kana and Quintus taking out full-page ads in publications like *The New York Times*.<sup>1</sup>

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<sup>1</sup> *The New York Times*, Monday, March 20, 2000, Kana & Silknet fill page C7, Quintus page C9.

Such actions play neatly into the predictions of Forrester Research, which wrote that Web-centric customer service applications would "grow from being an interesting experiment to becoming an essential part of companies' customer management strategy" by 2001, and that, by 2003, "these applications will define how a company works with its customers."<sup>2</sup>

The notion that multimedia contact centers are fast becoming a fixture in customer-service organizations is supported by an April 1999 Yankee Group survey of 100 major corporations with at least one call center. It found that nearly 75 percent of companies planned an active commitment to Web customer support in the ensuing 18 months.<sup>3</sup> With this commitment to diversification of customer touch points, these corporations are taking a tack that appears inexorable as e-commerce accelerates the forces of convergence and stimulates demand for enhanced interactive services (text chat, callback buttons, VoIP, and, eventually, interactive video) among consumers who spend an increasing amount of time online.

Although several publications and a number of Web sites are devoted to the call-center/contact-center space, very little is available that provides a holistic view of the multimedia contact center and the backdrop against which it is developing. The purpose of this study is to offer a comprehensive overview of the multimedia contact center, and this paper will examine this topic from a number of vantage points.

In Chapter I, it will provide a general overview of the market for both traditional call centers and multimedia contact centers, examining the drivers of the business and

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<sup>2</sup> J. Thomas Gromley et al, "Web-Centric Customer Service," *The Forrester Report*, February 1999, database online, available from Forrester Research.

exploring differing forms at play in the market. In Chapter II, which comprises the bulk of this analysis, the paper will turn to the general architecture and specific functions of a multimedia contact center. To put the contact center in context, the operation of a traditional call center is described in detail, and a number of factors that work in favor—as well as against—the transition to multimedia contact centers from traditional all centers are outlined.

Chapter III builds upon the discussion of contact center functionality to assess trends in customer service. This chapter starts with a discussion of the customer-service hierarchies for both traditional call centers and multimedia contact centers. This chapter also identifies trends in customer care center operations, as well as major hurdles in operating a multimedia contact center.

Chapter IV assesses the direction of the industry from a corporate perspective, discussing the primary types of players and the direction each type appears to be taking as the industry continues to evolve and rapidly consolidate.

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<sup>3</sup> Yankee Group, "The Users Speak: Current and Future Plans for Web-Based Customer Care," *Telecommunications Report*, Vol. 14, No. 5 (April 1999), database online, available from The Yankee Group.

## **I. Overview: Customer Service Centers, E-Commerce, and Convergence**

### *A Very Brief History of Call Centers*

When Pan American Airlines introduced one of the world's first 24/7 call centers in 1956, one could hardly have imagined a future in which over 70% of all of a business' customer interaction would occur via telecommunications channels.<sup>4</sup> Shortly after Pan Am's leap into the next generation of customer service, AT&T introduced high-volume discounts for outbound long-distance calling, which led in short order to the large regional and national telemarketing centers, and, in general, an ability to use telecommunications to reach distant customers or prospects at a low cost.<sup>5</sup> AT&T rolled out toll-free (800) numbers in 1967, triggering the centralization of inbound customer-service centers.

Over the next decade, predictive dialers, voice detection units (VDUs), and automatic call distributors (ACDs) for improved inbound call queuing improved the process of running outbound telemarketing campaigns.<sup>6</sup> IBM's Customer Interface and Control System (CICS) dumb-terminal screen interface allowed customer service representatives (CSRs) instant access to customer account details, obviating the previous best practice of sifting through a mountain of printed reports as the customer waited on the other end.<sup>7</sup> The 1980s ushered in call center technologies like Interactive Voice Response (IVR), Computer Telephony Integration (CTI), and intuitive agent desktop

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<sup>4</sup> Dr. Jon Anton, "1999 Benchmark Report," *Purdue University Center for Customer Driven Quality*, 23 September 1999, <http://www.e-interactions.com/summary.pdf>, (5 March 2000). Anton estimates that over 70% of customer interactions by the year 2000 will occur through the call center or the Internet.

<sup>5</sup> "Workflow in IP Call Centers," Cincom, Inc., November 21, 1999, [http://www.cincom.com/pdf/99.11.21\\_cctg\\_white\\_paper\\_workflow.pdf](http://www.cincom.com/pdf/99.11.21_cctg_white_paper_workflow.pdf), (8 March 2000).

<sup>6</sup> *ibid.*

<sup>7</sup> *ibid.*



systems, enhancing agent productivity and lowering costs.<sup>8</sup> Many of these technologies, although much refined, are still fundamental to circuit-switched call centers and will be discussed in greater detail in Chapter II of this paper.

*The Call Center Industry: Large and Growing*

Comprising approximately 40% of the 260 million calls pouring through the network of AT&T alone each day, toll-free numbers have long since transitioned from being a differentiating factor to a basic requirement for companies interested in staying in business.<sup>9</sup> Call centers have responded to the need for companies to scale the service and support components of their businesses as the scope of their product has expanded into national and international markets. As a result, demand for inbound and outbound telemarketing services, in their myriad flavors, constitute a massive and growing market. Frost & Sullivan estimates the number of global call centers will triple from 100,000 in 1999 to 300,000 in 2001.<sup>10</sup> This growth will fuel rising demand for personnel in call centers, doubling from an estimated 9 million in 1999 to 18 million worldwide in 2001.<sup>11</sup> In the United States, estimates for the number of people employed in call centers range from 1.5 million (or 3 percent of the working population) to 7 million, depending on the source.<sup>12</sup> This growth is good news to industry players: IDC estimates that organizations will spend approximately \$59 billion on call center services by 2003, up from \$23 billion

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<sup>8</sup> *ibid.*

<sup>9</sup> "Industry Size," *Call Center News Service*, [http://www.callcenternews.com/resources/stats\\_size.shtml](http://www.callcenternews.com/resources/stats_size.shtml), (27 March 2000).

<sup>10</sup> Barbara De Poma, "Computer Telephony Integration—Call Center Breakthrough," *Internetweek*, August 2, 1999, <http://proquest.umi.com/pqdweb/>, database online, available from ProQuest, (8 March 2000).

<sup>11</sup> *Ibid.*

<sup>12</sup> "Human Resource Issues," *Call Center News Service*, [http://www.callcenternews.com/resources/stats\\_hr.shtml](http://www.callcenternews.com/resources/stats_hr.shtml), (27 March 2000). Datamonitor is more

in 1998.<sup>13</sup> For what has long been considered a mature industry, this is extremely healthy growth. E-commerce is the driving factor behind this phenomenon.

*E-Commerce: Changing the Game*

Both consumers and businesses in the United States have begun to view the Web as a viable vehicle through which to spend their money. American consumers spent an estimated \$16.2 billion online in 1999, up from \$4.5 billion in 1998, a rise that was driven by a tripling of retail orders, to 176 million.<sup>14</sup> Although these are massive numbers in absolute terms, they constitute just 0.5% of the overall U.S. retail market. By 2004, this figure is anticipated to rise to \$185 billion, representing 7% percent of all retail spending.<sup>15</sup> The U.S. Department of Commerce estimates that online retail sales mounted to \$5.3 billion in the fourth quarter of 1999 alone, accounting for 0.64% of all U.S. retail sales.<sup>16</sup> Although it received less media attention until recently, the B2B marketplace has been the nexus of the majority of e-commerce transactions. B2B e-commerce totaled an estimated \$162.5 billion in 1998 (2.5 percent of all B2B commerce); by 2003, this figure is expected to leap to \$1.4 trillion and comprise nearly one-fifth of all U.S. business-to-business commerce.<sup>17</sup>

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conservative than F.A.C./Equities in its estimate. Call centers often being internal departments with widely varying staffing, there is no sure means of arriving at an estimate.

<sup>13</sup> De Pompa, "Computer Telephony Integration."

<sup>14</sup> "Online Retailing in 1999 Quadruples Previous Year's Orders," BizRate.com, March 17, 2000, [http://www.bizrate.com/press/press\\_room/release.xpml?rel=67](http://www.bizrate.com/press/press_room/release.xpml?rel=67), (23 March, 2000).

<sup>15</sup> Steve Lohr, "The Web hasn't Replaced the Storefront Quite Yet," *The New York Times*, October 3, 1999, database online, available from Lexis-Nexis.

<sup>16</sup> Deb Price, "U.S. Measures E-Tailing Sales: Initial Report Says Online Buyers Spent \$5.3B in 4<sup>th</sup> Quarter," *The Detroit News*, March 3, 2000, database online, available from Lexis-Nexis. Note that BizRate.com estimated \$3.17 million for the same period (see "BizRate.com Wraps Up the 1999 Online Holiday Buying Season," January 5, 2000, [http://www.bizrate.com/press/press\\_room/release.xpml?rel=58](http://www.bizrate.com/press/press_room/release.xpml?rel=58), (23 March 2000). There is currently no reliable metric for estimating retail Internet sales.

<sup>17</sup> "MITI Survey."

It will not just be the same people spending more money, either, as Americans are connecting to the Internet in floods. Although the haziness of the Internet cloud makes precise measurements impossible, one analyst expects the number of U.S. Internet users to reach 100 million at some point during 2000, a nearly 250 percent increase over 1997.<sup>18</sup> In terms of household penetration, an estimated 41 percent of Americans had Internet access as of the end of 1999; this figure is expected to climb to between 70 percent and 85 percent of households by 2004.<sup>19</sup>

The number of consumers who shop on the Internet is climbing, as well. Odyssey found that 47 percent of American households with Internet access made online purchases in 1999, up from 30 percent in 1998.<sup>20</sup>

In the case of B2B e-commerce, much of the transition to the Web can be attributed to a transfer of proprietary EDI-supported inter-organizational trade to the universal interface of the browser. In the consumer market, slower gains in online sales represents the more organic process of individuals adapting to a new means of going about the business of shopping. As this paper will explain, the Web-enabled features of multimedia contact centers represent potentially powerful catalysts in driving this transition.

#### *E-Commerce and Customer Service Centers*

E-commerce has had a tremendous impact on customer service centers. For decades, inbound customer service centers have focused their energies on incrementally refining the means through which agents handled calls, a process that remained in its

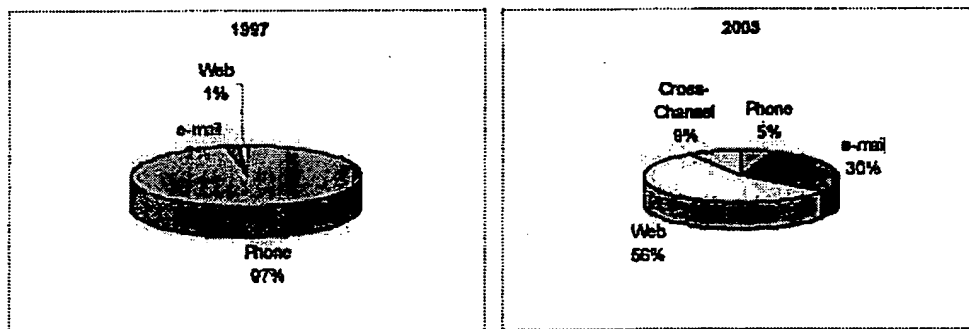
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<sup>18</sup> Nomura Securities, "Internet Research Institute Report," (Japanese Equities, December 22, 1999), p. 5.

<sup>19</sup> Ibid.

essence unchanged. At first glance, a recent breakdown of customer-service touchpoints shows little sign that this is changing: where 97 percent of customer interaction at customer care centers was by telephone in 1997 (with e-mail comprising 2 percent and other Web communications the remainder), the picture in 2003 is expected to differ starkly. Forrester Research predicts a drastic shift toward the Internet, with various modes of Web-based communication comprising 56 percent, e-mail 30 percent, and traditional telephone inquiries just 5 percent of total customer contact (see Figure 1).<sup>21</sup> It appears that the contact industry stands on the cusp of a significant transformation.

**Figure 1: Customer Interaction at Customer Contact Centers, 1997 - 2003**



Source: Forrester Research, *INFORMATIONWEEK*

A different set of forecasts appears to further support these expectations.

Multimedia contact centers themselves are expected to reach sales of \$14 billion in 2003, up from \$3.8 billion in 1998, a compounded annual growth rate of 24 percent.<sup>22</sup> Frost &

<sup>20</sup> Steve Lohr, "Survey Suggests Consumers are Taking to E-Commerce," *The New York Times*, March 22, 1999, database online, available from Lexis-Nexis.

<sup>21</sup> Cincom, "Transforming Your Call Center into a Multimedia Contact Center," *Cincom White Paper*, December 14, 1999, <http://www.cincom.com/pdf/EN991214-1.pdf>, (8 March 2000).

<sup>22</sup> Warren S. Hersch, "Cisco Offers IP Telephony Initiative," *Computer Reseller News*, December 6, 1999, database online, available from Lexis-Nexis.

Sullivan view the multimedia contact center industry in a similarly rosy light, anticipating a compound annual growth of Web-enabled call centers of 110% from 1998 to 2004.<sup>23</sup>

But the numbers only tell a portion of the story, and a closer comparison of the aforementioned B2C e-commerce forecasts with the above multimedia contact center outlay projections indicates a logic behind multimedia contact centers that is deeper than simple profit potential. Although intrigued by the Internet, it is hard to conceive why American businesses would be eager to invest billions of dollars in a new generation of customer-service infrastructure to better service 7 percent of the total retail consumer market (or 20 percent of the B2B market) by 2003-2004.

A recent survey by KPMG sheds light on this question. The company interviewed 225 VP-level executives from the top 2000 consumer markets in the United States. Among their findings was that two-thirds of those surveyed focused on retail e-commerce strategies primarily to "enhance communications with and exposure to consumers, rather than on sales and profitability."<sup>24</sup>

Rather than simply trying to cut costs (although reining in operating costs remains an important consideration), companies ever aware of the critical importance of retaining new customers are striving to improve their service offerings by providing a variety of channels through which to "touch" customers. Preeminent among these are various Web-supported mechanisms. Furthermore, IP-based solutions represent the last step of the migration of the customer service function from a primarily analog to a completely digital model. Although call centers have relied on screen pops and other CTI-driven functions for years, this merging of platforms enables the enhancement of both the depth

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<sup>23</sup> De Pompa, "Computer Telephony Integration."

of customer information and the reach of this information within an organization.

Customer data and aggregate statistics collected online through customer resource management (CRM) systems can suddenly flow to all corners of a company, often through interfaces with enterprise resource management (ERM) systems that themselves are increasingly focusing on front (rather than traditional back-end) functionality. "Most of our clients are trying to reorient their companies to a customer focus," says Craig Conway, PeopleSoft's CEO, "They are shifting their attention to viewing their entire business through a customer vantage point."<sup>25</sup>

In addition, even bricks-and-mortar customers increasingly use the Web to define their relationships with the companies they patronize, and the competition is never more than a few keystrokes away. A recent BizRate.com survey revealed that quality of customer support was the single most important factor driving repeat online sales, outstripping factors such as on-time delivery, ease of ordering, selection, and even price by healthy margins.<sup>26</sup> Companies are realizing that Web contact centers must do more than simply deliver a satisfactory degree of customer service as measured by traditional yardsticks. Increasingly, multimedia contact centers are on the organizational front line, driving sales and, eventually, the sort of customer loyalty that is indispensable in creating a viable business in a market characterized by near-perfect information flow and flagging customer loyalty.

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<sup>24</sup> Cisco, "MultiService IP Telephony Business Case," *Cisco Systems White Paper*, 1999, [http://www.cisco.com/warp/public/cc/cisco/mkt/iptel/profiles/msipt\\_bc.pdf](http://www.cisco.com/warp/public/cc/cisco/mkt/iptel/profiles/msipt_bc.pdf), (10 March 2000).

<sup>25</sup> Dana Gardner, "CRM gains ground as dynamic e-business app," *InfoWorld*, October 18, 1999, database online, available from ProQuest.

<sup>26</sup> "What Drives E-Loyalty," *PC Magazine*, January 18, 2000, p. 22

The final portion of this first chapter discusses the varying forms of convergence that are currently shaping the customer care industry.

*Driving Multimedia Contact Center Growth: Three Levels of Convergence*

The term "convergence" has no shortage of uses. In the telecommunications industry, it generally refers to the relatively unilateral transition of traditional circuit-switched telecommunications to the digital variety. In the context of the customer contact center, however, convergence can be considered in three separate dimensions:

*1) Technological Convergence*

Technological convergence refers to the migration from a circuit-switched call center that interfaces to digitized customer databases using CTI to an contact center that operates on a purely digital plane, usually using Internet Protocol as a mediator. This form of convergence is a flavor of that which is currently shaping the telecommunications industry at large.

*2) Competitive Convergence*

Competitive convergence refers to the increasingly blurred boundary separating dot-com from dot-bam businesses. Internet businesses and bricks-and-mortar companies once operated in non-overlapping spheres, primarily because many dot-bams discounted the potential of the new medium. However, as dot-bams increasingly establish themselves as potent online players, businesses old and new find themselves competing head-to-head online.

*3) Service Level Convergence*

The final and perhaps most unique form of convergence driving the emergence of multimedia contact centers is service-level convergence. As bricks-and-mortar

companies rush to add Web capabilities, dot-coms are scrambling to beef up weak customer service capabilities.

Service level convergence stems from the starkly contrasting starting positions of dot-com vs. dot-bam businesses now competing for customers online. Bricks-and-mortar (including catalog) retailers have traditionally had first-rate customer service capabilities via call centers, but now find themselves in serious need of diversifying these strong customer service offerings into channels that are more suited to e-commerce. Conversely, e-tailers with a strong Web presence are finding that they need to bolster their service offerings to gain the customer confidence and loyalty they need to remain afloat. As a result, companies like Land's End employ Web-based multimedia functionality at the same time that Amazon.com maintains a customer contact center with 600 agents handling orders and customer inquiries.<sup>27</sup> Says Lawrence Byrd, VP of Marketing at Quintus, "on the dot-com side, the customer experience is increasingly making the brand, and online service is therefore a hot executive topic."<sup>28</sup>

In short, convergence describes the drive for both online and bricks-and-mortar businesses to shore up their weaknesses. Figure 2 presents this process diagrammatically. Dot-coms starting with solid e-capabilities and low service quality and dot-bams starting with high service quality and low e-capabilities respectively attain similar levels of overall technological strength and service quality. Competitive convergence, not

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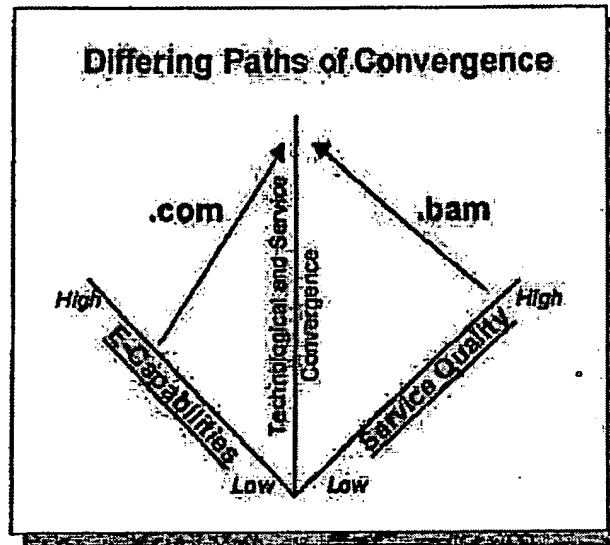
<sup>27</sup> Ofer Matan and Shannon Hughes, "Logically Handling Multiple Channels of Customer Interaction," *C@ll Center Solutions*, September 1999, <http://www.blue-pumpkin.com/reviews/ccs0999.html>, (8 March 2000).

<sup>28</sup> David Caldiera, Lawrence Byrd, Bill Durr, "The Great Debate: The Reality of Implementing E-Commerce Multi-Contact Centers," *The Tele-M@rket*, December 16, 1999, <http://ntrl.syn.net/telemkt/sessions/debates/dec99.html>, (10 March 2000).



explicitly shown in this graph, is an important element of the overall market environment in which technological and service convergence is taking place.

**Figure 2: Differing Paths of Contact-Center Convergence**



Having established an historical, market, and theoretical backdrop, Chapter II describes in greater detail the functionality of both traditional call centers and multimedia contact centers.

## **II. From Call Center to Contact Center: Technology in Transition**

In the previous chapter, this thesis discussed the history of customer care centers, their importance, the tremendous impact of e-commerce on the industry, and the three distinct forms of convergence (technological, competitive, and service-level) that are currently shaping industry. The following pages will shift the focus of the discussion to customer care centers themselves, and will explain how both traditional call centers and multimedia contact centers function, how they differ, and the factors affecting the convergence of these two technology platforms.

### *Inbound vs. Outbound Call Center Call Center Functions*

By the early 1990s, the customer care industry was quite mature, with established players like Rockwell, Lucent, Nortel, and Aspect forming the backbones of the majority of U.S. call-centers. Although call-center technology consistently improved over the years, its effects tended to be incremental in nature, and focused on improving CSR/call center efficiency and, ultimately, lowering costs.

There have been two primary applications for traditional call centers: outbound telemarketing and inbound telephone-based customer service. Telemarketing, a revenue center upon which business like long-distance telecommunications rely heavily to sell their products and services, is in business function quite different from customer-service, which has traditionally been a cost center. In terms of a call center's basic service operations, however, the two are very similar. Without outbound telemarketing, autodialer technology averts the tedium of punching numbers; voice detection units filter off hangups and answering machines. When these systems do land a live caller, the connection is made automatically and routed to an unoccupied CSR. From the

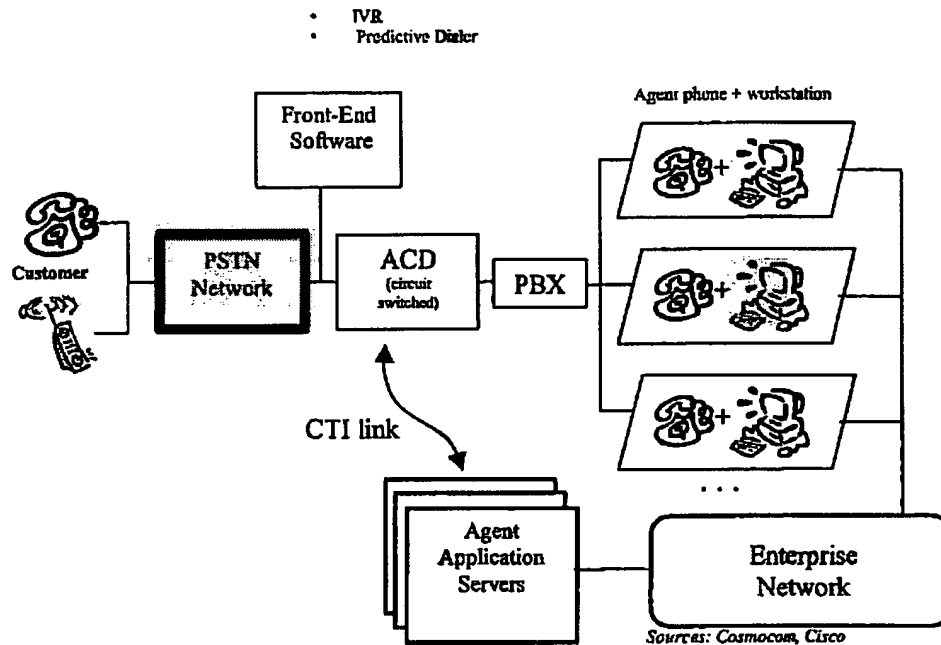
perspective of the CSR, the passiveness of being connected by an autodialer is quite similar to that of receiving calls from a customer service queue of inbound calls.

Despite the technical similarities shared by inbound and outbound call center functions, because multimedia contact centers are most commonly used for inbound customer service, this thesis looks at call centers from an inbound-call perspective.

### ***The Traditional Call Center***

The call center has been a vital element of corporate customer service for decades. Although not the focus of this thesis, understanding how a call center functions is critical to establishing a baseline through which to view multimedia contact centers from the perspectives of both operations and customer service. To aid the discussion, Figure 3 presents a basic call center architecture.

Figure 3: A Basic Call Center Architecture



The above schematic is a very rough sketch of a "traditional" call center. Note that the word "traditional" is used in this sense to refer only to the technology platform. Call centers that rely on variations of this sort of architecture are in fact highly sophisticated systems, merging digital and analog signals in a way that can support huge transaction volumes and route calls in complex ways with a high degree of reliability. In North America, companies like Rockwell, Lucent, and Nortel are the leading providers of the core hardware and software supporting these systems, which have a significant installed base of companies who have come to trust their customer-care operations to these robust, proven platforms.

This thesis focuses on multimedia contact centers should not be misconstrued as a dismissal of the call center as the horse-and-buggy of modern customer care. Quite to the contrary, call centers will be important conduits to customers for years to come, even as they become increasingly interfaced and integrated with multimedia contact centers that the second portion of this chapter will describe.

Perhaps the easiest means of describing the operation of a call center is to walk through an inbound customer service call and observe the various systems in action.<sup>29</sup>

Annalee, residing in Texas, leafs through a catalog distributed by personal grooming giant HairCair. She seeks unique fixtures for her cornrowed hair.<sup>30</sup> Settling upon a set of rhinestone beads in Dallas Cowboy Blue, she locates the HairCair toll-free number at the back of the catalog and dials.

An analog replica of her voice shoots across the public switched telephone network's (PSTN's) dedicated circuit-switched connection to the local central office. There, a central switch converts the signal to a digital format and multiplexes her voice in with a multitude of other calls to race across some portion of a backbone network. After a short ride, Annalee's call is routed to the destination central office, which switches the call back to analog format and sends it to a large suburban Phoenix service bureau that handles customer service calls for HairCair.

The call's first stop is at an interactive voice response (IVR) unit that can serve several purposes, from handling simple customer queries to gathering additional information from customers for more exact call routing. IVRs also reduce agent workload

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<sup>29</sup> The information contained in this description was gleaned from a variety of sources and verified/enhanced in a March 23, 2000 telephone interview with Christopher Neff, a former MCI inbound call center business manager/product manager.

<sup>30</sup> Resemblance of Annalee to persons living or dead is purely coincidental.

and ensure that calls are "answered" promptly regardless of call center workload and backlog. The IVR unit communicates briefly with the key component of the call center, the automatic call distributor (ACD), which uses PSTN central-office provided dialed number identification service (DNIS) to determine just what toll-free number Annalee dialed.

Establishing this number is important for a number of reasons. First, HairCair publishes catalogs throughout the United States. Years of market research has shown hair product consumers to be uncannily swayed by agents who speak with similar accents—or at a bare minimum the same language—as the caller. For example, special toll-free numbers on Spanish-language catalogs for the Miami market are routed to bilingual representatives. Callers from Texas catalogues are routed to reps with southern accents.

DNIS numbers are also used as a tool in geographic profiling and other marketing purposes. Feedback through ACD or CRM-driven reports can be fed back into the marketing pipeline to better tailor catalogues and other advertising initiatives by geographic area or to gauge the success of marketing/advertising campaigns.

In Annalee's case, the IVR also needs DNIS information because the customer-care service bureau contracted by HairCair is an outsourcer for a number of clients. The IVR welcomes Annalee to HairCair and inquires as to what department to which she wishes to be connected. After waiting for several seconds as the IVR reads a number of options, she says or presses "three" and is connected to sales.

In addition to the (800) number Annalee dialed, the ACD also determined Annalee's home phone number based on automatic number identification (ANI) information passed through the PSTN. The ACD interfaces with front-end customer

relationship management (CRM) software that resides on agent application servers, which searches for Annalee's customer record from a sales. Annalee is a frequent shopper at HairCair, her data record shows, and has in the past spent a goodly sum on beads to decorate her ample cornrows. In a fit of complex calculation, the ACD considers the DNIS, the ANI, agent availability, and agent skills before sending the call through the private branch exchange (of which the ACD is physically a portion) to an agent telephone, which begins to ring. At the same time, the ACD notifies agent application servers that it has made this decision.

The race is on. In the enterprise network, an agent application server accepts this request and collects a bevy of information on Annalee through a network of relational database tables, firing a complex record toward the workstation assigned to the agent about to take the call. If things function as they should, the collected information paints the cathode ray tube (CRT) as the agent (who happens to hail from Texas) takes the call in what is known in the business as a "screen pop."

Once on the phone, the agent notes Annalee's historic weakness for cross-sell pitches and, during the course of a crisp conversation, sells her a hair clip that not only matches the beads but also vaguely resembles Troy Aikman standing in the pocket (if one looks very closely). Annalee hangs up just a little bit happier than before.

Note also that Appendix 2 contains detailed descriptions of some of a number of the functions listed in the above description, as well as of call monitoring and recording devices, fax-on-demand services, and other hardware elements not depicted here for the sake of simplicity.

*From Call Center to Contact Center: The Transition*

The rate of growth in the number of traditional call centers is decelerating, from 4% annually as of 1999 to an estimated 0.8% in 2003, a slowdown attributed to both maturation and consolidation within the call center industry.<sup>31</sup> If the traditional call center worked well for so long and continues to be indispensable customer-service tool, why are call center growth rates falling? The answer, addressed in more general terms in Chapter I's discussion of convergence, is that Web technologies are propelling traditional call center players toward a more software-centric orientation capable of managing customer interaction through a variety of contact channels. Analyst estimates tend to support this: according to Datamonitor, the global call center software market will soon nearly triple in size, from \$2.9 billion in 1999 to \$8.5 billion in 2003.<sup>32</sup> Considering these estimates in tandem, the migration of the customer service center's technological focus from the hardware switch to a more software-centric model is explicit, and might be seen evidence of the technological convergence suggested in Chapter I.

This transition from call center to multimedia contact center has occurred in two main phases. In the first phase, which is already nearing its end, startup companies devised innovative "point" (or single-channel) solutions in specific areas of Web-based customer service such as e-mail, text chat, or VoIP. While building markets in their products of strength, these vendors expanded their product lines through both internal development and acquisition. At the same time, companies like Cosmocom, Genesys, and WebLine developed software suites that multiple channels Web-based communication. The consolidation phase, which took the automotive and consumer products industries



decades to reach, began within about two years of the multimedia contact industry's inception.

This acceleration is occurring on two main fronts. The first involves point solutions either joining forces or purchasing/being purchased by companies offering a broader suite of functionality. The second form of consolidation involves traditional networking, telecommunications and call-center buying multimedia contact center vendors, who seek the products and skills to gain quick entrée into the extremely dynamic multimedia contact channel space.

Online industry prognosticator Jupiter Communications says of this process:

"In the future, Web ventures will meet all of their customer service technology needs through a single vendor, but that future is at least 18 months away—longer for Web ventures that choose to integrate a phone-based solution. Until that point, vendors will actively support and even encourage joint installations of best-of-breed component applications."<sup>31</sup>

Until that time, the contact center industry remains fertile ground for systems integrators.

Chapter V will discuss the competitive landscape of the multimedia contact center industry in greater detail. What cannot be understated is the tremendous pace at which this change has transpired, even with respect to the estimates of industry experts just two years ago (see Figure 4 below).

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<sup>31</sup> Call Center News Service, "Industry Size," [http://www.callcenternews.com/resources/stats\\_size.shtml](http://www.callcenternews.com/resources/stats_size.shtml), (27 March 2000). Statistic from Datamonitor, May 1999.

<sup>32</sup> Ibid.

<sup>33</sup> Cormac Foster, "Kana Acquires Business Evolution and NetDialog: True Platforms Still 18 Months Away," *Jupiter Communications Analyst Note*, December 13, 1999, database online, available from Jupiter Communications.

**Figure 4: Multimedia Contact Center  
Evolution:**



*\*Yankee Group, February*

The Yankee Group—and the industry players it interviewed in creating the report from which the left side of Figure 4 above is adapted<sup>14</sup>—could not have anticipated the blistering pace of development in the multimedia contact center space. This has resulted

in the bulk of Web-delivered options arriving at the market not in graduated increments but more or less simultaneously. Of these services, only VoIP has lagged somewhat in its actual deployment (although it is technically viable and is offered by several vendors as either a point solution or as an application in more comprehensive suites).

The question of why this transition has occurred so quickly is answered in broad strokes in the Chapter I discussion of the growth of e-commerce and the various forms of convergence. However, beneath the forest of these trends lie a number of tangible business reasons behind the migration to a Web-centric multimedia contact center. These are listed in Figure 5 below and explained in the paragraphs that follow.

**Figure 5: Business Reasons Supporting  
Multimedia Contact Centers**

- ✓ The popularity of self-service
- ✓ Enhanced ability to capitalize on the purchase impulse
- ✓ Consumers are flocking to the Internet
- ✓ Dot-barns view the Net as vital
- ✓ Dot-coms must improve service or perish
- ✓ Computers don't sell—people do
- ✓ Improved reach and scalability of customer service
- ✓ Reduced telephone toll costs
- ✓ Improved agent efficiency
- ✓ Better customer service load balancing

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<sup>34</sup> The Yankee Group, "Cyber Call Centers 1998: From Internet-Enabled to Internet-Architected Call Centers," *Telecommunications Report*, Vol. 13, No. 3, February 1998, database online, available from The Yankee Group.

*A taste for self-service.* Fundamentally, customers use the Web for self-guided information gathering and shopping. Hands-off selling came of age in the 1990s, perhaps most famously exemplified in the soft-sell approach embraced by Saturn auto dealerships. The self-service assumption central to retail e-commerce fits very well into a model to which consumers have shown great affinity.

*Enhanced ability to capitalize on the purchase impulse.* Web-based shopping minimizes both time lag and effort separating a consumer's purchase impulse and from the actions necessary to actually buy. Amazon's one-click ordering is an excellent example of this. No other medium currently available in the United States<sup>35</sup> places product information or marketing closer to the actual tools necessary to make a purchase.

*Consumers are flocking to the Internet.* The Gartner Group estimates that approximately 25% of all customer interactions will take place via e-mail or other Web-based communications by 2001; Forrester estimates this number at 56% by 2003.<sup>36</sup>

*Dot-bams view the Net as vital.* The Web is becoming an increasingly critical point of contact for dot-bams, and a vital channel in both building their image and expanding access to customers. Multimedia call center technology fits into the existing call-center-based customer service model, representing less a revolution than an evolution in terms of implementation challenge.

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<sup>35</sup> Digital television trials currently underway in Sweden that allow customers to purchase advertised goods directly through their televisions via remote control trump of even Amazon's offering, where online shoppers still must proactively link to the site and, in most cases, actively seek a potential purchase. This marrying of the ubiquitous and fundamentally passive activity of TV viewing with the purchase action may represent the next revolution in consumer marketing.

<sup>36</sup> Isaac Hillson, ed., "Quintus corrals Mustang.com," *Commweb*, February 29, 2000, <http://www.commweb.com/news/feb/2k0229.quintus.html> (4 March 2000). Forrester figure from graph in Chapter I.

*Dot-coms must to improve service or perish.* Web-based merchants recognize the need to provide satisfactory customer service to remain viable. The costs of dissatisfied customers, although difficult to quantify, has a real price tag. Datamonitor estimates that roughly 10 percent of the estimated 70 percent of total online shopping-cart dollars that are abandoned might have been salvaged with improved customer service. This translates into an estimated \$1.6 billion in lost business in 1998 alone.<sup>37</sup>

*Computers don't sell—people do.* With artificial intelligence engines still somewhat overwhelmed by the complexities of anything but the most basic cross selling and upselling, e-tailers are missing sales opportunities. A study by NFO Interactive found that nearly 35 percent of a broad sample of Internet shoppers surveyed said they would purchase a greater volume of products online if they could speak with a CSR at the time of their purchasing decision.<sup>38</sup> So while the option of peace and quiet of self service is appreciated by consumers, shoppers appear to value the possibility of interpersonal interaction—if only for the peace of mind of knowing that there are in fact human beings somewhere behind the digital façade.

*Improved reach and scalability of customer service.* The Web enables both reach and scalability in customer-service offerings. With a shopping catalog, every purchase requires some amount of direct agent attention with even with the most independent, sophisticated buyers. On the Web, shoppers can close such transactions on their own, greatly reducing costs per transaction. These costs vary widely depending on the type of contact (depending whether the call is for sales vs. support, inbound vs. outbound, type of product or service, and other factors); a recent Purdue University study placed the

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<sup>37</sup> Cincom, "Transforming Your Call Center into a Multimedia Contact Center," *Cincom White Papers*,

average cost per call at \$11.65.<sup>39</sup> Self-service Web transaction cost estimates vary, but are generally placed at well under \$1 per transaction.

*Reduced telephone toll costs.* Costs for telecommunications include base and monthly costs. A 100-seat call center using a dedicated T-1 line might incur a base charge of roughly \$1,500 per month and, if volume exceeds \$5,000 per month, roughly \$0.05 per minute for each interstate call an agent receives.<sup>40</sup> If the 100-seat center were to move to a Web-based model, data network upgrades (to handle the additional traffic) from a single 384 Kbps connection to redundant 512 Kbps connections would cost an estimated additional \$1,340 per month plus installation fees of roughly \$1,000.<sup>41</sup> However, variable long distance charges make up the lion's share of a call center's telecommunications costs, which encompass 7.6 percent of a call center's total costs—a higher percentage than computer hardware, software, telecommunications equipment, or recruiting and training costs.<sup>42</sup> There are thus strong telecom-related cost incentives to shifting customer service to the data network.

*Improved agent efficiency.* In a recent Forrester Research survey of 50 business-to-business organizations, almost all said that the Web has increased their capacity to handle customer contacts; 65% said that, despite the dramatic rise in Internet-based traffic, they had not been forced to hire additional agents.<sup>43</sup>

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December 1999, <http://www.cincom.com/pdf/EN991214-1.pdf>, (8 March 2000).

<sup>38</sup> Ibid.

<sup>39</sup> Dr. Jon Anton, "1999 Benchmark Report."

<sup>40</sup> Cisco, "Multiservice IP Telephony." Interstate rates: Tim Hanson and Jim Endres, "Negotiating the Best Long Distance Contract for Your Call Center," *CRMExchange*, August 17, 1999, <http://205.243.101.193/sessions/tel-081799.html>, (28 March 2000).

<sup>41</sup> Cisco, "Multiservice IP Telephony."

<sup>42</sup> Dr. Jon Anton, "1999 Benchmark Report."

<sup>43</sup> Paul R. Hagen, "Tier Zero Customer Support," *The Forrester Report*, December 1999, database online, available from Forrester Research.

*Better customer service load balancing.* Customers still have relatively lax response-time tolerances for store-and-forward communications like e-mail. Thus after an immediate, automated reply from an e-mail response system, e-mail messages can often be assigned lower priority in agent queues and handled at lulls in more time-critical inbound transactions like phone calls or text chat requests. This enables load balancing and higher efficiency at the call center.

There are thus a number of compelling reasons behind the trend away from call centers toward multimedia contact centers. At the same time, though, significant challenges exist. Some of the key considerations are related to staffing and training for contact center jobs that suddenly, in the aggregate, require a far more diverse a talent pool than has historically been the case. Chapter III will discuss the human resource side of customer service in greater detail. In addition to these considerations, however, multimedia contact center implementations face the following hurdles in becoming as widespread as their circuit-switched predecessors:

- *Fundamental incompatibility with legacy technologies.* According to one observer, "You're trying to integrate telephone systems, which traditionally use closed architectures and proprietary protocols, with the Web, which is open."<sup>44</sup>
- *Huge installed base of legacy technologies.* Even the most well-heeled of the pure-play IP solutions like Cisco's AVVID-architecture-based CallManager platform face a juggernaut of sunk-cost investment in Lucent, Rockwell, Nortel

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<sup>44</sup> Dan Sweeney, "Calling All Web Sites," *CIO*, September 1, 1999, [www.cio.com/archive/webbusiness/090199\\_power.html](http://www.cio.com/archive/webbusiness/090199_power.html), (22 March 2000).

and Aspect call-center systems that are moving their core platforms toward more open, software-centric standards.

- *Limited Scalability.* As mentioned earlier in this thesis, full-function multimedia contact centers have yet to be extensively proven in large call-center implementations. Although not the case with e-mail, multimedia contact center features like text chat and VoIP have yet to be extensively deployed in contact centers with hundreds of users. Scalability becomes of particular concern in the area of the multichannel ACD, which must handle levels of complexity (due to multiple message types with differing agent skill sets in each) far higher than its traditional ACD counterpart.<sup>45</sup>
- *Questions regarding reliability.* With a very short implementation history and few (if any) public success stories of large-scale multimedia contact centers, major call centers are unlikely to rip out their legacy ACD and switch whole-hog to Web-based multimedia solutions.

As a result of all this, The market power of entrenched players has limited the adoption of Web-only IP contact center solutions to smaller call centers or to small experiments of 25-30 users in large service centers.<sup>46</sup>

#### *The Multimedia Contact Center*

In its ultimate form, the multimedia contact center would be a remotely located black box that performed much like the Computer in *Star Trek, the Next Generation*. It would receive messages via any form of media (phone, e-mail, text chat, hand-scribbled

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<sup>45</sup> Robert Mirani, "Customer Contact Centers 2000: State of the Union," Audio conference presentation slides, The Yankee Group, February 8, 2000, Database online, available from The Yankee Group.

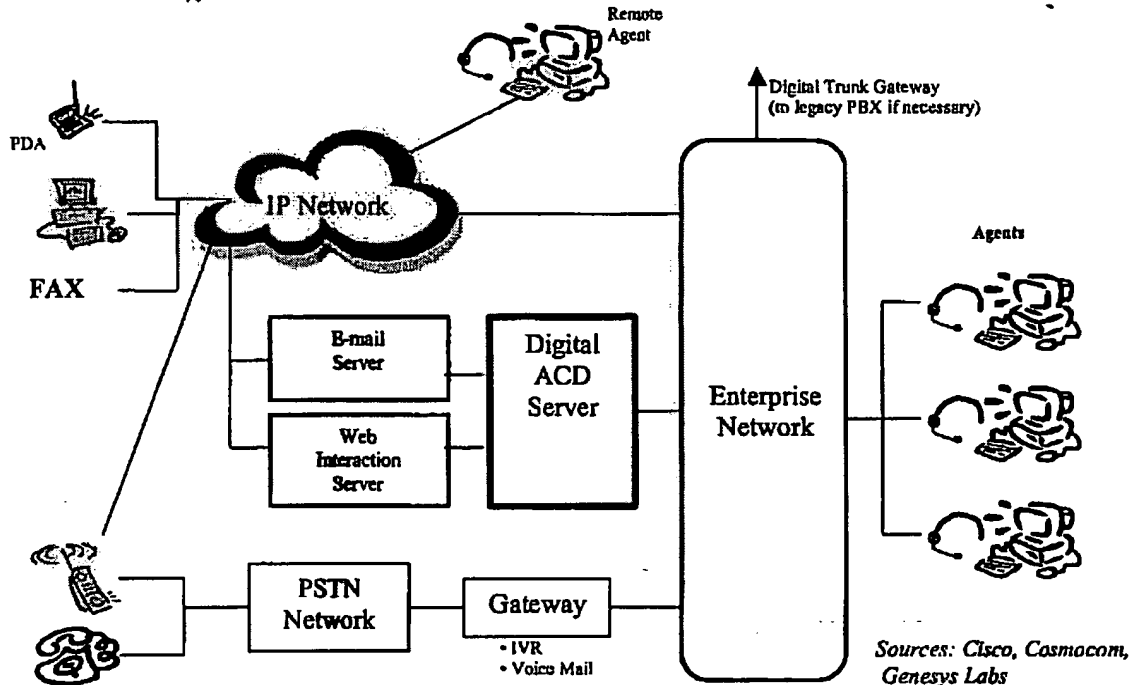
<sup>46</sup> Ibid.



notes, video, Morse code, tarot cards, you name it) in any language and instantaneously generate perfectly targeted, custom responses at zero marginal cost. In the first months of 2000, technology is still a long way from enabling this ideal. However, thanks to many of the reasons discussed above and to the public good of Internet Protocol, multimedia contact centers are beginning to take real steps in this direction. An important first step—unified messaging (the favored industry term for the bundling of dissimilar communication media into a single agent workflow queue) is catching on quickly.

As with the above description of call center functionality, this discussion will be facilitated by a graphical depiction of a contact center (see Figure 6). This diagram contains a very high level view of the elements of a multimedia contact center, and for simplicity's sake disregards a number of contact-center elements, such as CRM software, workflow management engines, call monitoring/recording software, autodialer software, campaign management software, voicemail software, and any number of supporting features available from myriad vendors.

**Figure 6: A Basic Multimedia Contact Center Architecture**



The numerous channels through which an inbound customer request can enter the system will preclude an extension of Annalee's bead-purchasing anecdote. The next paragraphs will describe the above in two ways: first from a general standpoint, and second through a brief description of some individual applications at the core of the multimedia contact center.

Beginning with the customer, the most obvious difference between a call center and contact center is the diversification of the potential modes of contact. In addition to the phone calls fielded by traditional call centers, the multimedia contact center's IP basis opens the customer service center to several new channels, including but not limited to

personal computers, wireless PDAs, and Web-capable mobile phones. Fax handling—a separate service in traditional call centers—is funneled through the e-mail management function into the same queue as e-mails, which they resemble in terms of response-time expectations and general content.

Traditional phone calls are also supported by the multimedia contact center. Inbound calls are routed through an IP telephony gateway that converts the PSTN's circuit-switched calls to IP. There are several ways of encoding voice data to ride over IP; currently, the trend is away from proprietary protocols toward more open standards such as the International Telecommunication Union's H.323. The IP telephony gateway also handles traditional front-end call center tasks like voicemail and IVR. To a caller, the transition to the digital network is perfectly transparent.

The e-mail server's function will be described in detail below. Briefly, however, the e-mail server handles both fax data and e-mail input. E-mail, the most-used Internet application, is driving many companies' switch to the multimedia contact center.

The Web interaction server includes logic to handle the diverse functions of text chat, inbound VoIP contacts, as well as interactive Web-surfing applications (called collaborative browsing or "whiteboarding") that allow agents to "push" Web pages to the customers to whom they are speaking.

As is the case with the call center ACD, the ACD server is the core element of the multimedia call center. The role of the multimedia call center's ACD is, as mentioned, far more involved than its call center counterpart. It must manage not only phone calls, but also a diverse array of inbound media with different queuing and prioritization rules. Once the e-mail manager fires off a generic autoresponse, an e-mail might have a 24-hour

window for reply; a text chat session request may require attention within 30 seconds; and an incoming VoIP call might require the same immediate attention as the PSTN-channeled calls arriving via the gateway and the enterprise network. In addition, the ACD server must consider agent skills not just from the perspective of the call center ACD in the previous example (which asked things like: What company does the DNIS represent? What region? What language?), but also from the perspective of an agent's skills in a particular communications medium (typing vs. spoken). In short, an extremely powerful and flexible rules engine is required.

An element of special note in the diagram is the remote agent, connected directly to the curvaceous IP network cloud at the top. Although Chapter III's discussion of the services side of multimedia contact center will discuss this in greater detail, this lonely agent represents a very important development in the customer service industry: with all of a contact center's communications being handled over IP, agents can work from wherever they have a reasonable Internet connection and a headset—potentially a benefit to employee retention in an industry with high turnover.

From the perspective of the agent, little will have changed on the surface. Advances in CTI have brought modern call centers to the point where, if not in fact, the phone and the computer appear to be unified technologies. The "race" between the phone call and the supporting agent application servers is at least theoretically still a factor, as the ACD server must communicate with CRM systems (integrated to varying degrees with the actual front-end contact center software, depending upon the vendor) to retrieve customer data sets. Rather than using DNIS, ANI, and IVR responses to identify customers and their intentions, however, Web-enabled multimedia channels attempt to

peg a caller's intentions based on such factors as the contents of a Web shopping basket, the usage patterns the user has displayed while in the site (or their surfing patterns in general, depending on the customer: subscribers to free ISP services like bluelight.com and worldspy.com have their every click monitored), and the page from which the user is initiating contact with customer service.

The following paragraphs take a closer look at the functionality of e-mail, chat, VoIP, and the callback button in multimedia contact center

*Functionality: E-mail*

With the skyrocketing of the number of e-mails being received from customers, e-mail management is usually the top priority for companies installing multimedia contact capabilities. IDC estimates that the e-mail management market, born in 1997, will grow at a compound annual rate of 63%, reaching \$342 million in 2003.<sup>47</sup>

This money will be spent on systems that attempt through a variety of means to make sense of the chaos of incoming mails.

Optimally, e-mail systems provide shoppers with a Web-based e-mail entry form, which allows for context information like a customer's location in the Web site at the time of contact. As an e-mail arrives in the system, e-mail management software does several things, including filtering to match e-mail addresses with customer records, eliminating "shotgun" inquiries from multiple "submit" button clicks, assigning a tracking number to the e-mail to establish an audit trail with a particular customer or inquiry and

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<sup>47</sup> Hillson, "Quintus corrals Mustang.com."

prevent duplicate responses, and generating automated responses informing customers that their e-mail has been received.<sup>48</sup>

Once in the system, many e-mail response systems parse incoming mails through scoring modules that range in complexity, applying tools like natural language processing, neural networks, and data mining to determine the contents of an incoming mail. These modules look for keywords in mails to help prioritize customer responses. They also generate response templates that are used either to assist agents in quickly handling inquiries or to generate a "smart" automated reply.

Either independently or in tandem with the ACD server, an e-mail manager must have workflow, routing, and tracking engines. Furthermore, e-mail response systems include reporting modules (for productivity tracking, queue tracking, complaint tracking, and so on) that can be used to refine a company's Web site and customer service handling.

#### *Functionality: Chat*

The text chat of a multimedia call center is a far more refined animal than the typical sessions that flow between friends using the AOL Instant Messenger. Online chat in a multimedia contact center is integrated with CRM-fed information (consumer context, customer history, corporate knowledge base, standard scripts/templates) similar to that of traditional call centers or an e-mail manager.<sup>49</sup> In addition, chat software often includes the same sorts of agent response templates as described above.

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<sup>48</sup> The Yankee Group, "E-Mail Response Systems: Crucial Component of Next-Generation E-Support," *Customer Relationship Management Strategies Report*, Vol. 1 No. 9, December 1999.

<sup>49</sup> The Yankee Group, "Web-Based Customer Interaction Systems: An Introduction," *Customer Relationship Strategies Report*, Vol. 1, No. 2, April 1999, database online, available from The Yankee Group.

Chat allows for multitasking of chat sessions by individual reps, who routinely handles several chatters simultaneously. 1-800 Flowers, which uses eShare's netAgent product, can handle four concurrent customers within about six minutes. Telephone inquiries, averaging three minutes per call, are half as efficient.<sup>50</sup>

Chat offers additional benefits, as well. Golfdiscout.com found that international traffic increased significantly as overseas customers unwilling to pay for (800) service to the United States went to the Internet for information. The company also found that chat also had the side benefit of reducing the language barrier: typed messages are easier to interpret than extremely heavy accents.<sup>51</sup>

#### *Functionality: Callback Button*

With e-mail, the callback button is one of the most common types of multimedia service offered to customers via the Web. Unlike e-mail and VoIP, however, callback buttons are technologically possible through call center-CTI technology. After a Web visitor fills out an online form requesting a callback, the information is converted to a datagram sent to the ACD, which then enters the queue as if it were a call and triggers a callback when the next agent becomes available.<sup>52</sup>

Callback appear to be a "bellhead" answer to Web customer service, and one that is more attuned the limitations of technology than to some overriding customer tastes. As a multimedia contact center service, callback buttons do have value in that they give

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<sup>50</sup> Ibid.

<sup>51</sup> Cosmocom, "CosmoCall Case Study: Golfdiscout.com Selects Ultimate Internet Solution," <http://www.cosmocom.com/e-commerce/solution.htm>, (8 March 2000).

<sup>52</sup> Stephen R. Kowarsky, "The Evolution of Call Center Technology in the Internet Age," *Cosmocom White Paper*, fall 198, [www.cosmocom.com/download/whitepaper.zip](http://www.cosmocom.com/download/whitepaper.zip), (20 March 2000).

customers an outlet for personalized customer services in situations where chat and VoIP are not possible due to either customer preference or technological limitations.

Interestingly, just as callback buttons were among the first Web-based multimedia applications used by customer care centers, so too do they appear poised to play a pioneering role in the digital wireless realm, which, portends to have a significant impact on e-commerce: according to IDC, the total value of wireless Internet transactions will rise from US\$4.3 billion in 1998 to US\$38 billion by 2003.<sup>53</sup>

Genesys Labs recently announced three European pilot projects in which mobile phones of any sort can link to Web-based customer care centers via Wireless Access Protocol (WAP).<sup>54</sup> Callback is a key function being tested, as it might be of great value to a wireless Web user in cases where, for example, someone making an online stock trade required immediate customer service. Rather than manipulate standard online help functions or send an e-mail through the tiny form factor of the mobile phone, the wireless Web user can simply request a callback.

A drawback to more conventional callback buttons is that the majority of consumers connect to the Web via their single residential phone connection, requiring that the Internet connection be closed before the callback (which can usually be scheduled by the customer) arrives. This eliminates the possibility of using collaborative browsing as an explanatory/sales tool in the dialogue.

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<sup>53</sup> Genesys Labs, "Genesys to Extend Customer Interaction Capabilities to Mobile Users," *Press Release*, March 7, 1999, [http://www.genesyslab.com/about/news\\_events/2000/march/wireless.html](http://www.genesyslab.com/about/news_events/2000/march/wireless.html) (5 April 2000).

<sup>54</sup> *Ibid.*



*Functionality: VoIP*

Functionally speaking, a VoIP contact is handled just as is a call-center call. Like callback, VoIP is very attractive to current call center managers, who can implement this multimedia functionality with minimal disruption to call center service patterns. One important difference, though, is in customer identification. Though information funneled through the Web site will provide a good substitute for the DNIS, identification of the caller cannot be supplied by the PSTN's ANI or through front-end IVR systems. Therefore, limiting VoIP access to customers who have either registered or otherwise identified themselves to the company (via a Web form, for example) is important to enable CRM systems to supply necessary information to agents.

The pace implementation of VoIP trails other multimedia contact center due to a couple of issues. First, from a technical perspective, IPv4, the version of Internet Protocol currently in use, is a "best efforts" protocol with no built-in QoS guarantees. This is irrelevant for non-time-sensitive communications like e-mail, where latency is unlikely to disturb typical users. Best-efforts service is also less unimportant when network traffic is light. Attempting to use a best-effort IP network at a time of network congestion, however, reminds one of the importance of QoS. Data traffic tends to be "bursty," or prone to huge swings in usage depending on both predictable (time of day) and unpredictable (type of files being downloaded by random users) factors.

We might have to wait years for QoS guarantees on public Internet. Until a number of involved steps are taken (standards must be developed; routers, switches, and all types of network edge and customer premises equipment must be upgraded; network management hardware and software must be created and deployed), the idea of a quality-

differentiating Internet "will probably remain a pipe dream—at least in terms of working through multiple IP networks—for perhaps five years, according to some analysts."<sup>55</sup>

Second, businesses with huge investments in call centers are less eager to roll out this somewhat overlapping technology than to invest in e-mail management and online knowledge base technology that can service Internet customers while reducing agent workload and, as a result, costs.

#### *Overarching Technical Benefits of a Multimedia Contact Center*

The location-independent employment enabled by virtual contact centers thanks to IP are potential carrots to agents, particularly for the part-time workers that make up a healthy share of the current call-center agent employment base. This capability also plays into the recently hyped lifestyle movement of "freelancing" trumpeted by new-economy business magazines like *Fast Company*.

Also, the use of supporting Web technologies like collaborative browsing and natural language processing coupled with a knowledge base is of great value in providing customers with more comprehensive service. As mentioned, although customers prize solid customer service, they increasingly value their autonomy. By using technologies like that supplied by Ask Jeeves, Inc., companies like Dell Computer and Office Depot are showing that natural language technology can engage customers in a dialogue as they find answers to their questions without tapping into rep resources.<sup>56</sup>

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<sup>55</sup> Kate Gerwig, "Netting Quality Is No Simple Catch -- Glut Of Protocols Could Delay Differentiation By Five Years," *Teledotcom*, October 4, 1999, <http://www.teledotcom.com/directlink.cgi?TLC19991004S0015> (19 March 1999).

<sup>56</sup> Dan Sweeney, "Calling All Web Sites," *CIO*, September 1, 1999, [www.cio.com/archive/webbusiness/090199\\_power.html](http://www.cio.com/archive/webbusiness/090199_power.html), (22 March 2000).

The e-commerce world is focused on revenue and closing sales. Multimedia contact center technologies help agents close deals, a top-line angle that is much easier to argue to senior management than traditional bottom-line cost savings call centers have relied upon in the past. To manage this, however, contact centers will increasingly have to develop new metrics on customer revenue and results, rather than simple transaction properties. This will involve looking at the history of customer interactions and determining the benefits derived by the customer and the business as a whole.<sup>57</sup> Even customer-service contact centers are being increasingly seen as profit centers: "Call centers used to be answerable to their manager, but in the future, it will be to the board," says Dan Hawkins of Datamonitor.<sup>58</sup>

A concern regarding a company's offering of direct personal content via the Web is the abuse of these services by people less interested in actually buying products than in checking out these new customer service technologies at the expense of agent time and contact center money. However, the inherent flexibility of the Web can mitigate these sorts of issues: "The interesting thing about service buttons on the Web is that you can make them disappear," as one observer noted.<sup>59</sup> Specifically, buttons for VoIP, callback, or chat sessions can be added or removed from a site depending upon the type of customer and/or what that customer is doing on the site.

In the next chapter, the discussion moves from hardware and software to the factor most critical to customer-service quality: people themselves.

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<sup>57</sup> Byrd, "The Great Debate."

<sup>58</sup> George Cole, "Call Centres: New trends and technologies sweep through sector," *The Financial Times*, March 19, 2000, <http://www.ft.com/fts-surveys/sp9ee6.htm>, (19 March 2000).

<sup>59</sup> Byrd, "The Great Debate."

### **III. Trends and Challenges in Customer Service Amid Shifting Technological Sands**

Throughout history, customer service has been about people, be they communicating face-to-face, via wire or radio wave, or across threads of optical fiber. Much of the preceding discussion has been focused on the market, industry, and technological dynamics behind the transition from call center to multimedia contact center. Although mentioned in passing, one element that has been absent from this analysis has been the human side of customer service provision. The human factor important for a number of qualitative reasons; however, unabashed capitalism requires attention be focused in this direction, as well: personnel costs, including agent training, constitute over 70 percent of the total operating costs of a call center. In contrast, hardware, software, and transmission costs make up only about 20 percent of the total.<sup>60</sup>

A separate study found that direct labor and employee benefits account for an average of 53 percent of a call center's total costs, with hiring and training costs constituting approximately 3.7% of the total.<sup>61</sup> Although these numbers will likely change with the introduction of enhanced knowledge bases and other self-service options that fundamentally alter the nature of customer service, multimedia contact centers can be expected to have a high personnel cost component, as well.

The call center industry is characterized by high turnover, commonly ranging from 35 percent to 50 percent annually, with peak turnover rates sometimes reaching

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<sup>60</sup> Stefan Karapetkov, "IP Contact Centers: Changing the Call Center Paradigm," Call Center Magazine, October 1999, <http://www.tmcnet.com/articles/itmag/1099/1099it.htm> (8 March 2000).

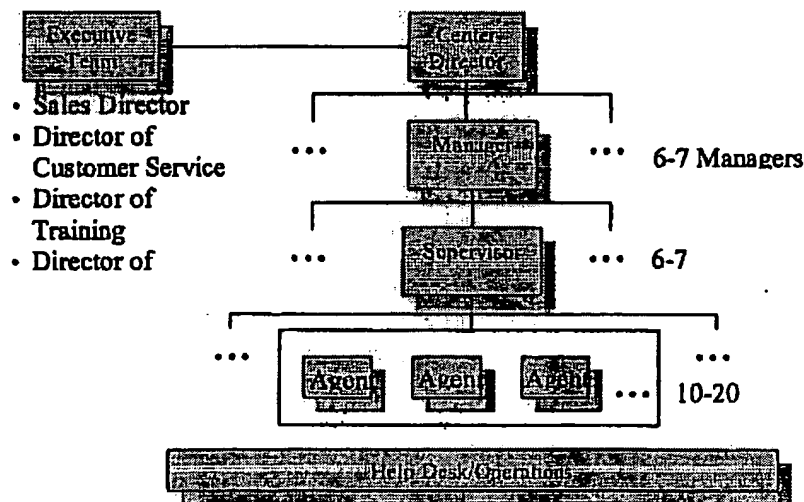
<sup>61</sup> Dr. Jon Anton, "1999 Benchmark Report."

several hundred percent per annum.<sup>62</sup> Hiring an additional agent, whose average salary was \$32,000 as of 1998, is estimated to cost \$6,500, and the average agent training period runs 180 hours.<sup>63</sup> Labor is expensive; it is therefore vital that they be deployed efficiently.

#### *The Call Center Service Hierarchy*

Multimedia contact centers—whether implemented without call center precedent at Internet businesses building customer service capabilities or develop from an existing call center base—appear to be using the time-tested call center service delivery approach in running their operations. This discussion begins with an explanation of the call-center service hierarchy as a basis for analyzing service delivery in the multimedia contact center (please see Figure 7 below).

**Figure 7: Call Center Service Hierarchy**



Source: MCI

<sup>62</sup> Call Center News Service, "Frequently Asked Questions About Call Centers," <http://www.callcenternews.com/resources/faq.shtml>, (27 March 2000).

<sup>63</sup> Dr. Jon Anton, "International Benchmark Comparison Slides," 1999, [www.e-interactions.com](http://www.e-interactions.com) (9 March 2000).

Starting at the top, the executive team and the center director are responsible for establishing strategic direction and ensuring operational success determining technology platforms, by supervising the center's operations, hiring and staffing, and setting and monitoring a center's service standards. At the next level, center managers ensure the continued daily operation of the center as the principal executors of the direction set by the director and the executive team.

Call centers are typically set up in bay environments with 10 to 20 agents per bay and one supervisor assigned to each group. The supervisor is responsible for "hitting numbers" related to performance (sales volume, for example) and quality, as well as for developing and rewarding agents (please see Table 1 for examples of call center metrics).<sup>64</sup> Supervisors also monitor calls being taken by agents in their group as well as handling issues that agents are unable to resolve.

**Table 1: Call Center Metrics**

<b>Overall Effectiveness Measures</b>	<b>Key Metrics to Watch</b>
Caller satisfaction	Cost per call in dollars
Percent calls handled on first call	Average speed of answer in seconds
Percent up sells and cross sells	Percent abandon
Calls offered versus calls handled	Percent not handled on first call
Service levels	Average handle time in minutes
<b>Overall Efficiency Measures</b>	<b>Agent Measurements</b>
Cost per call	Attendance
Calls per shift	Adherence
Average speed of answer	Occupancy
Average handle time	Calls handled per shift
Accuracy	Call quality
	Caller satisfaction

Source: Dr. Jon Anton<sup>65</sup>

<sup>64</sup> Christopher Neff, Phone interview.

<sup>65</sup> Dr. Jon Anton, "Customer Service Call Centers – The New Corporate Battleground," Presentation slides, 1999, <http://www.e-interactions.com/>, (5 March 2000).

The operations/helpdesk group varies with the size of the call center, but averages one support person per 25 agent seats.<sup>66</sup>

The arrival of multimedia contact centers affects each level of this hierarchy. Agents are faced with learning new skill sets and technologies; supervisors and managers must help develop and apply new and more complex metrics; the executive team and center director must devise new metrics, programs, hiring and training processes, and sales approaches, in addition to integrating the customer-service operation more deeply with the rest of the organization. Finally, help desk and technical areas must develop a far more diverse set of skills.

#### *The Multimedia Contact Center Service Hierarchy*

Though pleasing to the eye and a nice break from the monotony of 12-point Times New Roman, there is, as of yet, no discrete multimedia contact center service hierarchy to diagram. As mentioned above, the multimedia contact center service delivery model resembles closely that of the call center, whose processes have been continually refined for decades. This is not to say that the centers themselves function identically. There are many adaptations that customer service centers must make in handling a multimedia environment, and these issues are equally valid for Internet businesses that are building Web-enabled customer service capabilities from scratch. Specifically, there are quite simply few established precedents for running multimedia contact centers. Like the ACD itself, which suddenly must take far more variables into

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<sup>66</sup> Christopher Neff, Interview. Although the hierarchy present is from an MCI facility, visits to this facility by benchmarking teams from companies like Enterprise Rental Car, Charles Schwab, and J. Crew showed this configuration to be relatively standard across companies and service models.

account in doing its job, customer service centers must adapt to far greater levels of complexity.

The addition of e-mail, chat, VoIP, and callback buttons to the service mix presents complications that go beyond the simple devising of new formulae like "e-mails per hour" or "chat drop rate." The complexity rests in the integration of these diverse individual measurements into an overall picture that contact center management and the corporate executive team can use to assess the overall value the contact center is adding to the organization. If multimedia contact centers are indeed transforming customer service centers from cost centers to profit centers as this thesis asserts in Chapter II, there need to be numbers to determine whether the center is contributing to sales and, if so, to what extent. Right now, these metrics are by and large lacking. In one survey, 46% of companies did not measure resolution rates at all because of the difficulties with cross-channel synchronization and underdeveloped management tools.<sup>67</sup> Said one of the companies surveyed, "We don't know how many calls or e-mails it takes to solve an inquiry. We can't separate out the resolution rate on the Net because we are still using traditional channels in combination with the Net and e-mail."<sup>68</sup>

This is a further indication that organizations are implementing multimedia contact centers largely based on the visceral comprehension that offering next-generation customer service capabilities are a 21<sup>st</sup> century business necessity.

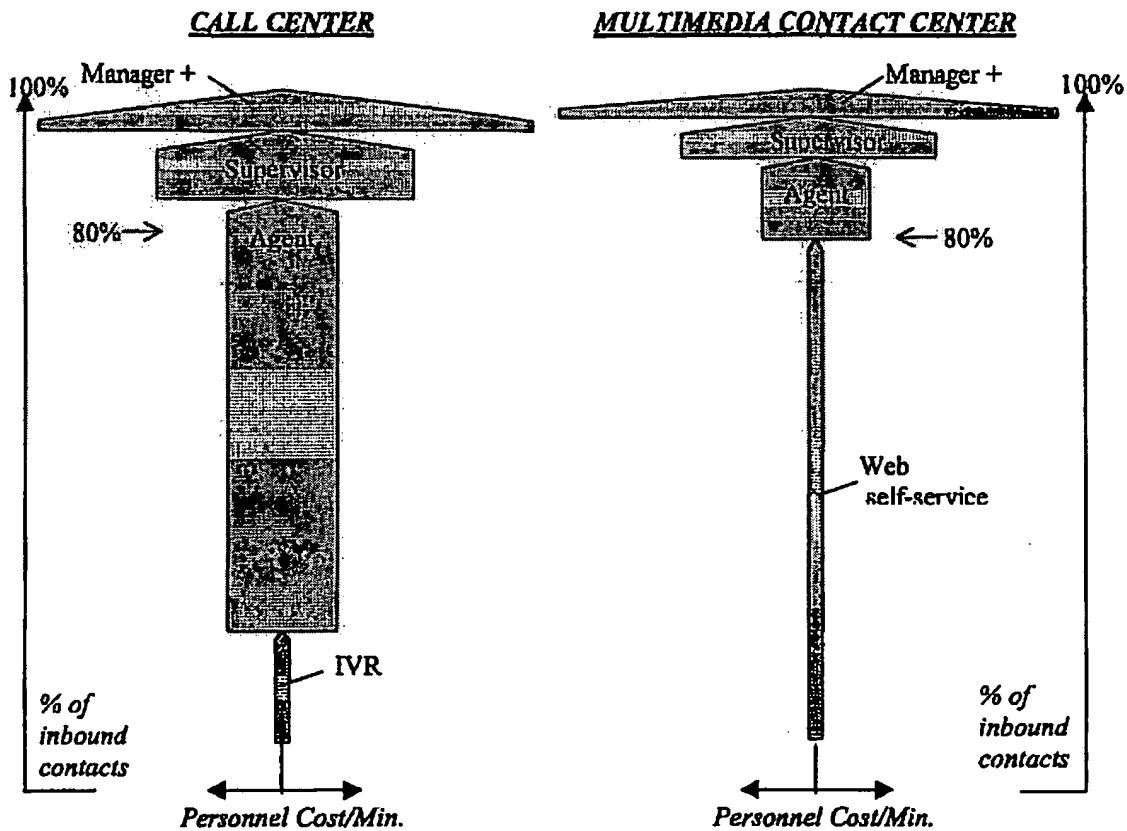
Theoretically, however, there are significant personnel cost savings to be had. Figure 8 below shows graphically how customer care centers foresee the multimedia contact center's introduction as eventually affecting service costs.

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<sup>67</sup> Paul R. Hagen, "Tier Zero."



**Figure 8: Service Cost Contrast—Call Center vs. Contact Center**



The left side of the graph shows variable service costs in a call center. The vertical axis represents the percentage of inbound calls. Regardless of the complexity of the customer inquiry, an agent must field the majority of most calls (IVR systems can complete a small percentage of inquiries). This graphic assumes that the "80/20 rule" (80 percent of customer contacts concern 20 percent of the universe of questions and vice-versa) is in effect, and shows conceptually how variable customer service costs (as

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<sup>66</sup> Ibid.

represented in the thickness of the arrows) differ when moving to the right hand side of the diagram, a Web-based customer service model where self-service knowledge bases can enable the handling of a large percentage of customer requests without human intervention. This representation is utopist, as customers currently using the Web frequently request personal assistance for routine requests. However, the right-hand side of this graphic represents what might be regarded as an "ideal condition" with the technologies currently available. Note that the *Star Trek* condition mentioned in Chapter II would be represented by an extension of the narrow Web self-service line straight to the top of the diagram.

The reminder of this chapter discusses two important trends in contact center service and identifies two major challenges facing the contact center from a service perspective.

#### *Trends: Outsourcing*

Outsourcing is nothing new in either the customer service or the IT space; in an environment with heightening IT intensiveness in concert with added workflow and management complexity, it makes sense that corporations are increasingly pleased to leave customer service tasks to specialists. Furthermore, the shortage of IT resources and the urgent need for companies to deploy strategic applications rapidly with the increased technical and service-delivery complexity associated with multimedia contact centers to present an even stronger case for outsourcing.<sup>69</sup> Companies' increasing reluctance to face

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<sup>69</sup> The Yankee Group, "CRM Megatrends," *Customer Relationship Strategies Report*, Vol. 1, No. 5, July 1999, database online, available from the Yankee Group.

all of these hurdles to build a non-core competency in-house should accelerate the growth of the customer-service outsourcing business.

Supporters of outsourcing claim the strategy offers many benefits, pointing out that building, integrating, installing and managing a contact center is costly—not to mention recruiting and training staff. Deb Tate, marketing manager of Kingston Communications' Call Centres, says: "Many organizations simply do not have the resources to provide these things and sensibly decide to stick to their core business and leave the call center side to the experts."<sup>70</sup>

But outsourcing presents risks, as well. Says one management consultant: "It can be difficult for the outsourced company to react to changes within your organization. You're also passing the control of your customer interface to an outsider—and that's always a risk."<sup>71</sup>

These call centers in transition are being joined by a new breed of customer care center: Internet companies offering multimedia-capable outsourcing to other Internet businesses in what formerly would have been the turf of call centers. The presence of companies like PeopleSupport, WebDialogs, and Ihey, which act as service bureaus for multimedia contact center services, provide further impetus for call center to expand their functional horizons before dot-com service providers reel in the dot-com business that appear poised to comprise a growing portion of future revenues.

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<sup>70</sup> George Cole, "Call Centres."

<sup>71</sup> Ibid.

*Trends: Virtual Call Centers*

The multimedia call center's use of Internet Protocol means potentially universal access. Experienced agents who have remote access to the same database and support functions as on-site reps can work just as effectively from home. Says one industry expert, "Virtual call centers will be useful for supporting the so-called '24/7 culture' as people are able to work from home, even through the night. They'll also help mothers returning from maternity leave."<sup>72</sup>

From the perspective of retaining personnel, virtual contact centers (VCCs) have great potential. Recruiting and retaining staff is a constant problem in customer service centers, particularly in contact-center-saturated metropolitan areas like Phoenix, Boston, Albuquerque, and many others, where agents can simply "walk out the door and find a new job."<sup>73</sup>

In the end, the enabling technology of the Web-based multimedia contact center is anticipated to grow the number of U.S. VCCs from an estimated 900 in 1999 to 3,200 in 2003; growth in Europe should be equally robust, with the number of VCCs rising from 100 in 1999 to approximately 450 in 2003.<sup>74</sup>

*Challenges: Unclear Metrics*

Consumers have developed strict requirements for response to phone inquiries. The average speed of answer for call centers has fallen to approximately 30 seconds.<sup>75</sup> VoIP requirements are essentially the same. But the response-time requirements for

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<sup>72</sup> Ibid.

<sup>73</sup> Neff, interview.

<sup>74</sup> Cole, "Call Centres."

<sup>75</sup> Dr. Jon Anton, "1999 Benchmark Report."

services like chat and e-mail remain unclear. Although customers do not demand immediate service with e-mail, as multimedia contact centers and the unified messaging they bring becomes more widespread, e-mail will be queued with other, traditionally far more time-sensitive forms of customer communication. As a result, these expectations will naturally rise. When they do, customer care centers will look with a degree of nostalgia upon today's de-facto standard practice of the contact center firing off an automated mail immediately and following up with a more tailored answer within 24 to 48 hours.

These rising expectations will catalyze the anticipated shakeout in e-tailing. As customer expectations skyrocket in tandem with improvements in e-mail, Web-based knowledge bases, VoIP, chat, and other services by firms that have the resources for first-rate technology and dedicated customer service staff, marginal players will find customers dashing for the exits.

For now, though, shaky service is widespread, even among well-known brands. As an example, a recent Yankee Group test of 42 leading e-tail, e-brokerage, and Internet pure-play software firms showed just 30 percent responding within 24 hours and 60 percent within 48 hours. Twelve percent never responded at all.<sup>76</sup>

#### *Challenges: Staffing*

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<sup>76</sup> The Yankee Group, "E-Mail Response Systems: Crucial Component of Next-Generation E-Support," *Customer Relationship Management Strategies Report*, Vol. 1 No. 9, December 1999, database online, available from the Yankee Group

As a Rockwell manager admits, "Handling e-mail, engaging in chat and flying a browser are skills that the typical call center agent simply is not used to exercising and represents competencies that we have never screened before."<sup>77</sup>

Many call centers making the transition to multimedia find that few voice-oriented agents possess the needed skills—or the desire—required to handle e-mail or other non-voice media: "Don't assume that the ordinary agent will be good at handling e-mail or that they will automatically enjoy the new experience, the manager says, "Also be cautious about impacting voice service levels by adding e-mail demand to the mix."<sup>78</sup>

Although one might instinctively believe that a bit more job variety would appeal to agents and improve their job quality, this is not necessarily the case. Said one former call center manager, "In my experience, people are most comfortable doing one function."<sup>79</sup>

With the influx of these new services, contact centers have yet to establish proven staffing methods. Two alternatives currently in use are blending and task-switching. In blending, the same agent receives a mix of phone calls, e-mails, and text-chat requests. In the case of task switching, an agent remains dedicated to a particular mode of communication for a given period of time.<sup>80</sup> Certain touchpoints lend themselves to bundling: Web chats and e-mail requests require writing skills; phone calls and VoIP requests stress verbal talents. As is the case with skills-based routing in conventional call centers, sharing agents across media can lower costs by minimizing idle time.

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<sup>77</sup> Byrd, "The Great Debate."

<sup>78</sup> Ibid.

<sup>79</sup> Christopher Neff, Interview.

<sup>80</sup> Ofer Matan and Shannon Hughes, "Logically Handling Multiple Channels Of Customer Interaction," *C@ll Center Solutions*, September 1999, <http://www.tmcnet.com/articles/ccsmag/0999/0999bluepumpkin.htm> (8 March 2000).

In the next chapter, the discussion turns from multimedia contact centers themselves to the companies that create the hardware and software upon which they depend.

#### **IV. Positioning, Posturing, and Consolidation: Industry Trends**

The contact center market is currently in flux, with myriad companies currently vying for a chunk of a rapidly evolving marketplace. Appendix 1 of this thesis includes a compilation that contains many the key players in the call center and contact center industry. One of the columns, "Industry Plays" contains mergers or acquisitions in which the company was involved. Although not a complete list, nearly a third took part in some form of equity transaction, with many of these occurring since mid-1999. The rapid pace of technological, competitive, and service-level convergence is leading to contact-center industry consolidation as the competencies required to deliver a ever-diversifying menu of products (both hardware and software) and services expand at a pace too rapid for internal development. "Companies are scrambling to support all modes of communication," says one observer, "which has led to a lot of partnering because few companies do everything well."<sup>81</sup>

Over the next few pages, this thesis will discuss the current trends in call center industry hardware and software markets. In light of the rapid pace change in this industry, it will attempt to understand these trends in general terms, avoiding the temptation to dwell on the myriad stratagems of individual companies in the creation of a laundry list of corporate names. Instead, this chapter will examine the market position, the strategic focus of the major categories of players and a handful of recent acquisitions as a means to understand the current and likely future path the industry as a whole.

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<sup>81</sup> Dan Sweeney, "Calling All Web Sites," *CIO*, September 1, 1999, [www.cio.com/archive/webbusiness/090199\\_power.html](http://www.cio.com/archive/webbusiness/090199_power.html), (22 March 2000).



In the interest of simplicity, the scores of diverse players in the contact center hardware/software market can be placed in three major categories:

1. "Old-line" call center providers like Lucent, Nortel, Rockwell, and Aspect.
2. Network-centric multimedia contact center providers like CosmoCom, Genesys, and Interactive Intelligence, whose software-based offerings run the gamut of multimedia contact center applications including voice (VoIP as well as gateway-converted POTS), e-mail, text chat, and callback functionality in one bundle.
3. "Point" solution providers that specialize in a single element of the multimedia contact center picture such as VoIP, e-mail, and chat.

#### *Call Center Providers*

Call center providers, which traditionally focused on hardware (in particular, on the ACD), are broadening their offerings to include full-function Web technology. All of these players are currently working to Web-enable their offerings. A good example of this is Lucent's embracing the Web with its recently introduced CentreVu platform, which interfaces with its Definity ACD.

North American companies are not the only players in this game: Alcatel's recent purchase of Genesys, Nortel's acquisition of Clarify (a major CRM player purchased in a deal valued at \$2.1 billion), and Aspect's acquisition of multimedia provider PacNetX all point to the same conclusion: the traditional gorillas of the call center and telecommunications hardware industries are serious about multimedia contact centers and are spending big to get into the game.

Some observers feel that the interest of these players in multimedia customer contact goes beyond the customer service industry in scope. The continued consolidation

of this industry, according to Forrester Research, indicates that "multimedia messaging, unified queues, and telephony interfaces now belong to telecom titans Cisco, Lucent, Nortel, and Alcatel. These infrastructure vendors see unified interaction management in call centers as the test bed for a wider rollout of voice/data integration over IP to corporate LANs."<sup>82</sup> For major communications hardware providers, the contact center thus represents a piece of a larger strategy whose goal is to make their platforms central to the IP telephony solutions that will be standard at the next-generation office. The quality of service issues that hamper IP telephony in the public Internet are not an issue within corporate networks, where quality can be controlled with proprietary protocols that work in concert with IP.

Although not a traditional call center provider, Cisco Systems' recent push into the multimedia contact center market with its CallManager ACD platform merits special mention, particularly in light of the above. Cisco acquired two full-service multimedia contact center vendors, GeoTel and WebLine (Webline being Cisco's 42<sup>nd</sup> acquisition), in fall 1999. Depending on the NASDAQ's whimsy on a given day, Cisco is the most valuable U.S. company, and it views its bulldozing into the once sleepy realm of corporate voice communications as one of the key engines by which it will maintain its prolific growth to date. GeoTel and WebLine products are being integrated into Cisco's AVVID architecture, with which the company intends to replace everything from PBX to phones in bringing corporate communications onto an entirely digital, IP-driven platform.

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<sup>82</sup> Bob Chatham, "Customer Interaction Center Battle Lines Drawn," *The Forrester Brief*, October 6, 1999, database online, available from Forrester Research.

*Multimedia Contact Center Providers*

The companies comprising second of the above categories, network-centric multimedia contact center providers, focus on software. Many run on the Microsoft NT platform and, in many cases, rely on off-the-shelf software like Microsoft Net Meeting for client-side VoIP. Companies that began in this space are finding themselves under siege on two fronts. Major telecom and networking players are very interested in obtaining the expertise of these companies, as was the case with Cisco Systems in its aforementioned purchase of GeoTel and Webline. In addition, point providers seeking to diversify their offerings are pushing into this space as they seek to satisfy customers increasingly interested in a comprehensive solution.

Cosmocom and Interactive Intelligence are two noteworthy companies that have remained truly independent multimedia contact center providers. Their market is becoming more crowded, however, by both giants like Lucent and companies like eGain and Kana, who are expanding beyond their original strengths as "point" solution providers.

*Point Solution Providers*

The industry consensus seems to be that point solution providers are quickly approaching extinction. This is not to say, though, that their employees will soon be found curbside near the nation's high-tech hubs, begging for alms. Point solution providers have been among the most successful companies in the industry, and they are either merging with complementary point providers, integrating into the more diversified product lines of other corporations, or are buying themselves a broader product mix.

One advantage that point providers have had over many of the more traditional telecommunications-related companies has been their focus: the Internet. Companies like Kana, BrightWare, and eGain specialized early in e-mail management software and remain leaders in this area. These companies were and are viewed as Web businesses by other industry players and, perhaps more significantly, by investors. Market capitalizations have been extremely high as a result, and managers have been leveraging their financial clout.

Kana is an excellent example of this. In the span of a year, Kana acquired multimedia contact center software providers Business Evolution and NetDialog, and in February took advantage of its \$6 billion valuation (up from a \$1.5 Billion IPO in September 1999) to purchase Silknet, a leading CRM provider with strengths in Web self-service, knowledge management, workflow, and integration with telephony equipment.<sup>83</sup>

On a far smaller scale, this purchase represented to the increasingly unified CRM and contact center industry what the AOL purchase of Time Warner merger did to mass media. In both cases, a narrowly focused newcomer leveraged an inflated market cap to buy an established old-line company that, intuitively, one would expect to be doing the acquiring. The result of the Kana-Silknet merger is a \$10 billion company that offers a very solid multimedia contact center solution.

Single-channel vendors are expected to have a tough go as a growing number of competitors are able to provide comprehensive solutions to various channels of the multimedia contact center. At the same time, though, companies like Kana and eGain are

using their Internet-business market caps to quickly gain market share and strengthen their competitive position vis-à-vis traditional call-center market leaders that suddenly find themselves on the defensive.

In addition to the above, there are a couple of further industry trends of note. One is the increasingly close ties between front-office CRM vendors and call center/contact center vendors, exemplified best in Lucent's relationship with CRM provider Siebel and Nortel's purchase of Clarify. CRM systems provide the information backbones to call centers and are well-positioned to do the same for multimedia contact centers. CRM vendors have in the past failed in attempts to team successfully with call center vendors; however, as call centers become more computing-centric, the differences in sales models, delivery models, and compensation methods that previously amounted to incompatible corporate cultures is dissolving, resulting in powerful partnerships that benefit both parties at the expense of potential entrants.<sup>84</sup>

A second is that the extreme rise in complexity that has accompanied multimedia contact centers is presenting opportunities for a new breed of software company like Blue Pumpkin and Witness Systems, which specialize in sophisticated workflow management and monitoring systems that can handle the complexity of multichannel customer care solutions.

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<sup>83</sup> Bob Chatam and Lauri M. Orlov, "Kana Buys Silknet: That Was the Easy Part," *The Forrester Brief*, February 17, 2000, database online, available from Forrester Research.

<sup>84</sup> Robert Mirani, "Customer Contact Centers 2000: State of the Union," Audio conference presentation slides, The Yankee Group, February 8, 2000, p. 5. Database online, available from The Yankee Group.

## V. Conclusion

As the Web matures as a medium of commerce, both Internet and bricks-and-mortar businesses are rushing to implement multimedia contact centers. Despite the multimedia contact center's increasingly mainstream relevance to global business, little has been written on this space from a holistic viewpoint. The purpose of this thesis has been to present a comprehensive overview of the multimedia contact center by providing both historical and market context, assessing the drivers behind its skyrocketing popularity as a customer care vehicle, exploring its functionality, and determining some of the challenges facing this new business tool.

In the process, this thesis examined contact center from a number of perspectives. It provided a general overview of the market for both traditional call centers and multimedia contact centers, examining the drivers of the business and exploring the three types of convergence—technological, competitive, and service-level—currently shaping market. In Chapter II, the thesis turned to the general architecture and specific functions of a multimedia contact center. To put the contact center in context, it also described the operation of a traditional call center as well as outlining a number of factors that play in favor of as well as against the transition to multimedia contact centers.

Chapter III built upon the discussion of contact center functionality to assess trends in customer service. This chapter began with a discussion of the customer-service hierarchy that is, as of spring 2000, standard across multimedia and traditional contact centers. This chapter also identified two major trends in customer care center services: the rise of the IP-enabled virtual call center and the growing popularity of outsourcing. It

also pointed out two key challenges to operating a multimedia contact center: staffing agents in the face of increasingly complex job descriptions, and developing comprehensive metrics by which to determine an agent's effectiveness in an environment where the core mission of the inbound call center is shifting from controlling costs to spurring sales.

Chapter IV sought to assess the direction of the industry from a more corporate perspective, discussing the three primary types of players (established call center providers, software-centric multimedia contact center providers, and point solutions specializing in a particular realm of the customer experience) and the direction each type appears to be taking as the industry continues to evolve as it rapidly consolidates.

The intended result of all this was to paint a picture of a once-tranquil customer care market suddenly thrust into hypercompetition, where the relationship between past and future returns, once quite reliable, is suddenly shrouded in doubt. The pace of technological and industry transformation makes the capture of a static snapshot an act similar in futility to photographing a three-year-old child on her birthday. Such an amorphous baseline seldom lends itself to accurate predictions. But prognostication is de rigueur in the case of such physical heft, and thus the quest beckons: where is the industry headed?

Old-guard call center vendors will continue to move the way of the Web. companies integrating large switch-centric call centers will demand increasing openness to different software platforms as well as strong front-office-driven applications with a multichannel workflow focus.<sup>85</sup>

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<sup>85</sup> Ibid.

Current chaos aside, in customer-service technology, the natural entropic tendencies of the physical world have been fully reversed as the industry races toward a theoretical ground zero of convergence, where all communications from a company's customers are handled instantly in a personally tailored means and at minimal marginal cost. This seemingly irresistible force will define the general framework in which lower order vagaries play out, random as they may at times appear.

As discussed at the end of Chapter I, the ultimate conclusion of full technological and service-level convergence is currently being approached from two vastly different launching points: the call center and the Web site. Despite the foregone conclusion of the ultimate digital nature of the customer care center, the whimsy of the path ultimately taken by companies in arriving at this end will create fortunes for some and bankrupt others. Two scenarios come to mind.

The first is one in which established players like Lucent, Rockwell, Nortel and Aspect maintain supremacy by succeeding in quickly opening their systems to the Web and maintain their traditional customers in the multimedia sphere. In this outcome, Web-centric service providers will have remained relegated to a niche with Web-only retailers or with a small portion of the overall customer-service portfolio of clicks-and-mortar customers. Here, the power of convergence will work in favor of one-stop solutions which, at first glance, call centers appear to have the inside track on providing.

An alternate scenario appears more likely at present. Both dot-coms and dot-barns that are currently in the market for Web-based customer care solutions, and are flocking to the best products available. Many of these products are currently sold by software-centric multimedia (or glorified point solution) vendors. One very real concern for major



call center industry players is that these Web-centric companies will prove themselves as capable of handling the far greater complexity of multimedia contact centers through the hundreds of installations that are already in place and multiplying daily (Kana, for example, has a client list of 350 that includes Web players like eBay, eToys, and Mercata as well as dot-bams like Ford, Shell, Ameritech, Microsoft, KLM, and Avon).<sup>86</sup> Here, the multimedia providers grow into the primary providers of customer care solutions over the long haul. In this case, switching costs, which currently play to the advantage of long-standing call center players, becomes a consideration on all sides and thus less relevant.

The eventual path will likely combine elements of both of these scenarios. Convergence is the only certainty.

Taking its cues from Hollywood, this thesis concludes not with the discord and ambiguity implicit in the above scenarios, but on a note of expectation and hope. American corporations are diving into the multimedia contact center market for the same reasons that they are flocking to the Web itself: a fundamental comprehension that the pain of transitioning to the Web will be amortized over years of subsequently more gradual adjustments to the digital future that awaits beyond.

Once the transition to IP is made, multimedia contact centers will enable smooth transitions into next-generation customer service media such as enhanced wireless interaction, one- or two-way video, and, eventually, virtual reality support. Since the historically tight relationship between buyer and seller was pried apart with the mass production following the industrial revolution, there has never been a time when the

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<sup>86</sup> Kana, "Kana Customers," <http://www.kana.com/customers/index.html> (5 April 2000).

reestablishment of that long-lost human face of customer service (for those customers

who from time to time desire it) in customer service appeared as imminent as today.

Using the enhanced IP services described above, the customer-service evolution will have come full circle, albeit in a far more efficient, versatile, and effective form.

## Appendix 1: Selected Multimedia Contact Center Players

<u>Player</u>	<u>Type</u>	<u>Key Products</u>	<u>Notes</u>	<u>Industry Plays</u>
Alcatel	Call Center		www.alcatel.com	Bought Genesys 10/99
Aspect	Call Center	CallCenterACD: Web Agent; Aspect Customer Relationship Portal; aBusinessIP will incorporate PacNetX tech.	www.aspect.com	Bought PacNetX 2/23/00
InterVoice-Brite	Call Center		www.intervoice.com	
Lucent	Call Center	Definity ECS platform	www.lucent.com	Bought eShare and changed name to eShare
Melita	Call Center			Bought Clarify 10/99
Nortel	Call Center		www.nortel.com	
Rockwell	Call Center	Galaxy ACD, Spectrum Integrated Call Center System; Internet Communications Studio	www.rockwell.com	
Teloquent	Call Center	several, mostly traditional call center and support	www.teloquent.com; Are building Web capability, but only callback and text chat at present	
Chordiant	CRM	Information Track	www.chordiant.com	Acquired by Nortel 10/99 Networks
Clarify	CRM	eFrontOffice	www.clarify.com	Bought Octane
E.Piphany	CRM	E.4 System	www.epiphany.com	
IMA	CRM			Bought by eGain 3/17/00
Inference	CRM	ic-Commerce Support Enterprise	www.inference.com	Bought by E.Piphany
Octane	CRM	iCru		
Pegasystems	CRM	eCRM	www.pegasystems.com	Bought Asurity, Mustang.com (2/00)
Quintus	CRM	eContact Suite	www.quintus.com	
Siebel	CRM	Siebel eService	www.siebel.com	Bought InSite; bought by Kana
Silknet	CRM			Bought by PeopleSoft (9/99)
Vantive	CRM			
Active Voice	Multimedia	Unity (unified messaging)	www.activevoice.com	
Acuity	Multimedia	WebCenter-including WebACD and Acuity WRU.	www.acuity.com	Bought by Quidius
Apropos	Multimedia	Total Interaction Management-handles phone, e-mail, chat/callback, fax.	www.apropos.com	
Balsoft	Multimedia	LiveContact		Bought by ServiceSoft 2/99
Business Evolution	Multimedia	@Once Service Center	www.businessrevolution.com	Bought by Kana
Cisco	Multimedia	AVVID architecture; Customer Interaction Suite	www.cisco.com	Bought GeoTel 10/99, WebLine
eGain	Multimedia	eGain Commerce 2000, Incorporates Multimedia elements in several modules	www.egain.com	Bought Sitebridge, Inference 3/16/00
eOn	Multimedia	eQueue 4000	www.eonce.com	
eShare Technologies	Multimedia	eShare Xchange	www.eshare.com	Bought by Melita, Melita changed name to eShare
FaceTime	Multimedia	FaceTime Instant Customer	www.facetime.com	
Genesys Telecommunications Laboratories	Multimedia	Genesys Suite	www.genesyslab.com	Bought Adams, bought by Alcatel
GeoTel	Multimedia			Bought by Cisco, 9/99
Interactive Intelligence	Multimedia	Enterprise Interaction Center (EIC)	www.inter-intelli.com	
Kana	Multimedia	Kana Response	Becoming a multichannel player through mergers	Bought Silknet, Business Evolution, NetDialog
Lightning Rod Software	Multimedia	CyberCall	www.lightningrodsoft.com; changed name from ATIO 3/1/2000	

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<u>Player</u>	<u>Type</u>	<u>Key Products</u>	<u>Notes</u>	<u>Industry Plays</u>
NetDialog	Multimedia			Bought by Kann
PacNetX	Multimedia			Bought by Aspect
PipeLive.com	Multimedia	PipeLive	www.pipelive.com	
Primus	Multimedia	eService, Interchange, eService, eMarketing	www.primus.com	
ServiceSoft	Multimedia	eCenter	www.servicesoft.com	Bought by Balisoft 2/99
Tapestry Integration Specialists	Multimedia	Simple*Contact Center	www.tapestry.com	
Telekol	Multimedia			Bought by Nokia (11/99)
Telephony@work	Multimedia	call center @mywhere	www.telephonyatwork.com	
WebLine	Multimedia	WebLine; Basis for Cisco Customer Interaction Suite		Bought by Cisco Systems 10/99
lhey	Multimedia outsourcing		www.lheyinc.net; just starting 4/00	
Peoplesupport.com	Multimedia outsourcing		www.peoplesupport.com	
WebDialogs	Multimedia outsourcing	NetCollaboration: a service (ASP)	www.webdialogs.com	
Cincom	Multimedia, Workforce Management	Encompass	www.cincom.com	
Blue Pumpkin	Peripheral (forecasting and scheduling)	PrimeTime	www.bluepumpkin.com	
Knowlix	Peripheral (Knowledge Ware)			Bought by Peregrine
ServiceWare	Peripheral (Knowledge Ware)	eService Suite	www.serviceware.com	
Witness Systems	Peripheral (monitoring)	eQuality	www.witness.com	
GlobalPhone	Point (callback)	WebCallback	www.webcallback.com	
iContact	Point (chat)	iContact	www.icontact.com	
LivePerson	Point (chat)	LivePerson 3.0	www.liveperson.com	
Net Effect	Point (chat)			Bought by AskJeeves 11/99
SiteBridge	Point (chat)	CustomerNow		Bought by eGain
Motive	Point (chat, e-mail)	AnswerWeb	www.motive.com	Bought by Ventix 1/00
Ventix	Point (chat, e-mail)			Bought by Motive 1/00
Adante	Point (e-mail)	Currently under Genesys brand		Bought by Genesys, 1/98
BrightWare	Point (e-mail)	Brightware Contact Center, Brightware Answer	www.brightware.com	
EchoMail	Point (e-mail)	EchoMail RMOS	www.echoemail.com	
Mustang.com	Point (e-mail)	TeleAgent		Bought by Quinrus 2/00

## Appendix 2: Call Center Components

Although not a comprehensive listing, the below components represent the core hardware and software elements of a traditional call center.

Automatic Call Distributor (ACD)	The heart of a call center. Routes the call in queue longest to the first available agent; it also distributes calls evenly among agents.
Call Recording / Monitoring Systems	<p>Handles "logging", or liability, recording, which keeps a record of every bit of voice signaling on every port and every call in a call-center system; and "monitoring", or quality assurance, recording, which lets call-center supervisors evaluate agents for review and training.</p> <p>Synchronized screen capture recreates the whole customer call experience, letting supervisors see fields fill up and agents navigate screens as they hear the related audio.</p>
Call Center ACD Management Software	<p>Shows the conditions within a call center. While the ACD handles the job of equally distributing calls or sending calls to agents based on whatever rules you've defined, it does not tell you how well your ACD is functioning. It does not measure how well you are handling each call or if you are meeting your service goals.</p> <p>ACD software tells you the average speed on answer, the length of the longest call in queue, the number of idle agents, which agents are logged out, which are logged in but not in "ready mode" (in other words, at their desks but not letting the ACD know they are ready to take calls) and a variety of other data.</p>
Fax on Demand	<p>Use of an automated fax-processing server for document distribution in image format. The interested party accesses the FOD system either via telephone through the PSTN or the WWW.</p> <p>Caller makes a selection from a menu of available documents and enters a return fax number. The fax server stores the return fax number in memory and associates with the desired document in order to satisfy the document request via return fax transmission.</p> <p>The most common access method is via telephone, typically via a toll-free (800/877/888) telephone number. The connection is made to a Voice Response Unit (VRU) system that greets the caller, and presents a menu of available documents from which selections may be made via touchtone keypad input.</p>

Interactive Voice Response	<p>Automates the handling of calls by interacting with one or more online databases. Popular IVR applications include bank-by-phone, flight-scheduling information and automated order entry and tracking.</p> <p>Caller's touch tone or spoken requests are answered with spoken information derived from data that is extracted from a "live" database. As such, a significant percentage of installed IVR systems are used to front-end call centers in an attempt to offload as many calls as possible away from costly live-agent handling.</p> <p>Most IVR systems today reside in Wintel PCs equipped with special ISA and/or PCI board-level products and their accompanying DSP processors. These specialized processors connect to the telephone system (the platform that actually switches the calls) using analog ports (the same type of ports used for basic single-line telephones). Some are available to connect using a digital connection for advanced signaling between the adjunct call-handler and the switch. They're also increasingly networked on LANs/WANs.</p>
Predictive dialers	<p>Using intelligent algorithms, these devices can detect when an agent is wrapping up a call; they'll then begin dialing the next number and send the call to that agent as soon as it reaches a live voice on the other end. These algorithms are also capable of detecting the number of available telephone lines, available operators and average length of each call.</p> <p>Predictive dialing can now also run across a Wide Area Network, allowing you to conduct real-time campaigns across multiple sites. For example, if the dialer launches a call from one office—yet all agents are still wrapping up calls—the dialer does not have to drop the call; it can instead search another office to find an appropriate agent to send the call to, creating a "virtual" call center in the process.</p>

Adapted From: <http://www.telecomlibrary.com/content/sol-center/cc.html>

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